

Application No. 09/558,266

SUMMARY OF PENDING CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1. (Previously Presented) A material having a layer, the layer comprising a plurality of self-assembled structures comprising compositions, wherein the structures are localized in separate, selected locations covering a portion of the layer in an integrated assembly and wherein the compositions comprise inorganic particles.

2.-3. (Canceled)

4. (Previously Presented) The material of claim 1 wherein the inorganic particles have an average secondary particle diameter from about 2 nm to about 200 nm.

5. (Previously Presented) The material of claim 1 wherein the inorganic particles have an average secondary particle diameter less than about 100 nm and the primary particles having a distribution in sizes such that at least about 95 percent, of the primary particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

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6. (Previously Presented) The material of claim 1 wherein the particles include effectively no primary particles with a diameter greater than about a factor of four times the average particle size.
7. (Previously Presented) The material of claim 1 wherein the particles have an average secondary particle diameter less than about 100 nm, the particles being located within pores of a material in the layer.
8. (Previously Presented) The material of claim 1 wherein the particles comprise a metal oxide.
9. (Original) The material of claim 1 wherein the compositions are attached to the surface with a linker molecule.
10. (Original) The material of claim 9 wherein the linker molecule comprises an organic compound with two functional groups.
11. (Previously Presented) The material of claim 1 wherein the particles are fluorescent particles or phosphorescent particles.
12. (Original) The material of claim 1 wherein the composition comprises a metal.
13. (Original) The material of claim 1 wherein the composition comprises a biological macromolecule.

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14. (Previously Presented) The material of claim 1 wherein the composition comprises silica.
15. (Original) A material comprising a self-assembled formation of inorganic particles, the inorganic particles having an average primary particle diameter less than about 100 nm and the particles comprising a composition selected from the group consisting of metal/silicon oxides, metal/silicon carbides, metal/silicon nitrides and elemental metal.
16. (Previously Presented) The material of claim 15 wherein the primary particles have a distribution in sizes such that at least about 95 percent of the primary particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.
- 17-40. (Canceled).
41. (Previously Presented) The material of claim 1 wherein the inorganic particles have an average primary particle diameter from about 2 nm to about 100 nm.
42. (Previously Presented) The material of claim 1 wherein the inorganic particles have an average primary particle diameter from about 12 nm to about 50 nm.
43. (Previously Presented) The material of claim 1 wherein the particles are in an ordered array within at least one of the self-assembled islands.

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44. (Previously Presented) The material of claim 1 wherein the plurality of islands are located along different layers within the material.

45. (Previously Presented) The material of claim 15 wherein effectively no primary particles have a diameter greater than about a factor of four times the average primary particle size.

46. (Previously Presented) The material of claim 15 wherein the inorganic particles have an average primary particle diameter from about 2 nm to about 50 nm.

47. (Previously Presented) The material of claim 15 wherein the inorganic particles have an average secondary particle diameter from about 20 nm to about 400 nm.

48. (Previously Presented) The material of claim 15 wherein the inorganic particles are in an ordered array within the self-assembled formation.

49. (Previously Presented) The material of claim 15 wherein the self-assembled formation is integrated into an integrated assembly.

50. (Previously Presented) The material of claim 15 wherein the inorganic particles comprise a metal oxide.

51. (Previously Presented) The material of claim 15 wherein the inorganic particles comprise a phosphor composition.

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52. (Previously Presented) The material of claim 15 wherein the inorganic particles comprise a material with an index of refraction suitable for transmitting visible light.

53. (Previously Presented) The material of claim 15 wherein the self-assembled structure has a photonic band gap that prevents propagation of light in any direction.